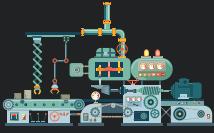


# KDDI Air Leak Visibility Solution



We don't understand how much air leaks are in the piping from the compressor.



Most efforts related to compressors are limited to scheduled maintenance.



The proper performance of the compressor is not known.

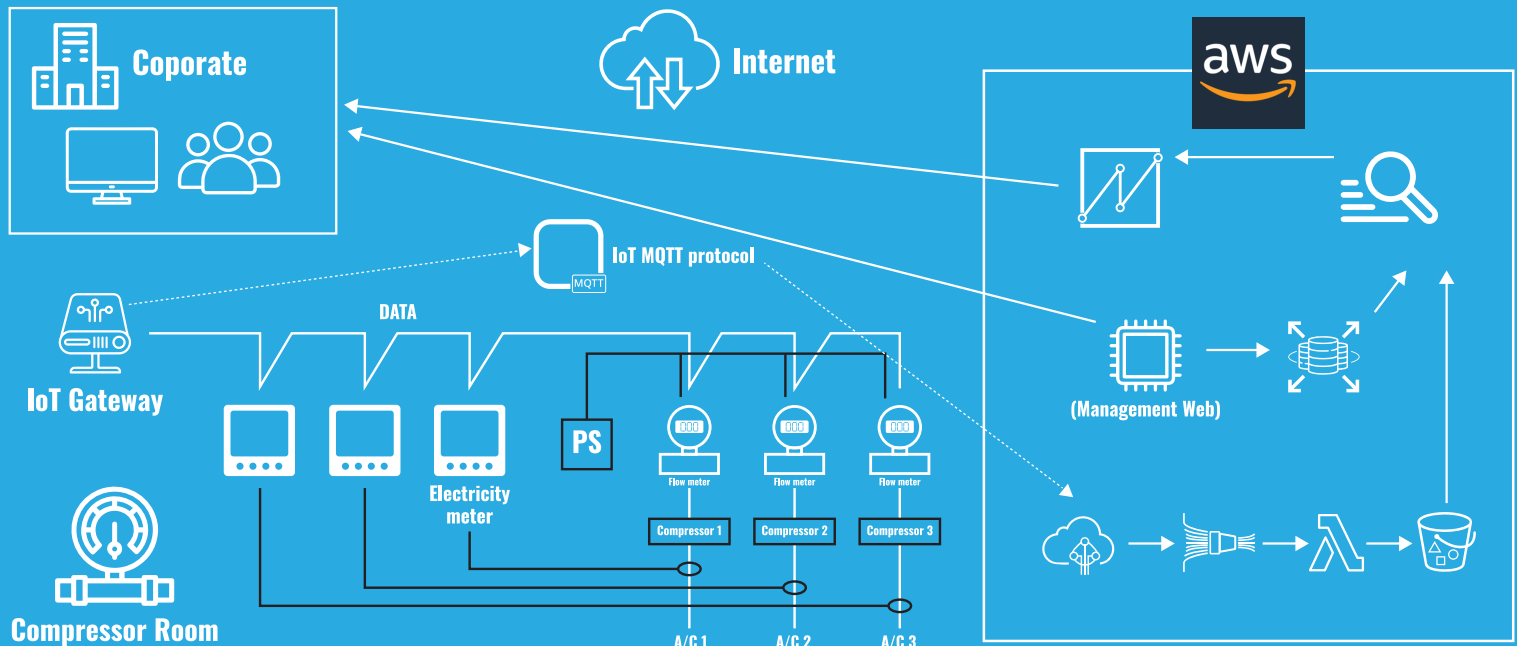


The condition and condition of the compressor is unknown.



There are closed and unreported cases within the department. Need to work as a company.

**The first thing to do is to understand the situation. If you don't understand the situation, you can't take measures.**



## How to install a flow meter and an electric meter?

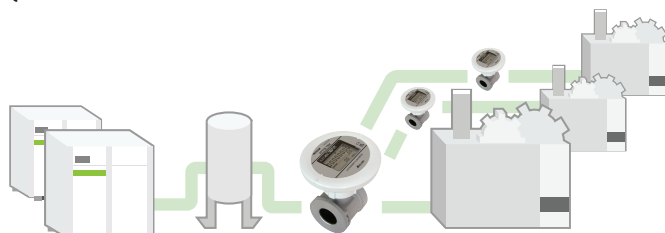
### How to identify air leaks and source pressure?

**1. Understand air leakage and original pressure throughout the plant (current status)**



Flowmeter installed behind receiver tank

**2. Understand air leakage and original pressure on each line of the plant (Check the air leak status of each line and take effective measures)**

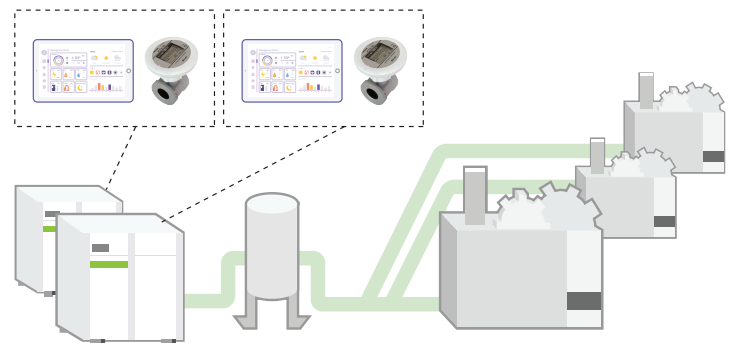


Flowmeter installed on each line of each production facility

Air leaks never go to zero. Continuous maintenance measures are needed

### How to identify air leaks and compressor conditions?

**3. Understand air leakage throughout the plant to determine compressor operating rates and CO2 emissions.**



You will be able to identify the following!!

- Power consumption per m3 (kW/m3)
- \*m3 per kW (m3/kW)
- kW x CO2 emission factor (approximate)

In addition to air leak maintenance measures Understanding compressor conditions and approximate CO2 emissions



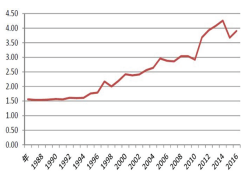
KDDI (Thailand) Co.,Ltd.  
 LinkedIn: KDDI (Thailand) Ltd.  
 Tel: 02-075-8888 / Email: bd@kddi.co.th



# Summary of market background in Thailand (independent survey)

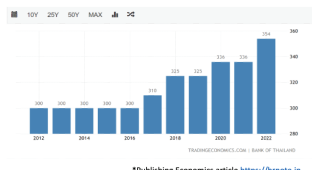
- Electricity costs are rising year by year.
- Thailand has the lowest birthrate and the fastest aging population in ASEAN, and its labor force is declining.
- Skyrocketing crude oil prices and soaring component and material costs have affected our business.
- The Thai government is stepping up its stance of "carbon neutrality," with virtually zero carbon dioxide (CO2) emissions.
- Some Japanese companies have received numerical requests from their headquarters in Japan to save energy and reduce CO2 emissions.
- Each company is in its second round of LED use and is introducing solar panels, but is still searching for the next step.

## Market background in Thailand (independent survey)



### 1. Electricity bills in Thailand

Electricity bills nearly double in 20 years September - December 2022 saw FT skyrocket to record high unit price of electricity.



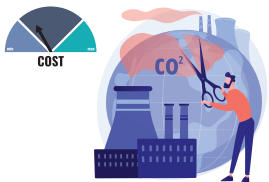
### 2. Labor wage increase in Thailand

Labor wages in Thailand are on an upward trend year by year. The declining birthrate and aging population are also contributing factors, and the upward trend is expected to continue.



### 3. Soaring crude oil prices, soaring material costs and other prices

Due in part to soaring global crude oil prices, material costs and component prices have also soared.



### 4. Reducing costs and CO2 emissions

Reducing expenses in price spikes of various expenses and efforts toward "carbon neutrality" by 2050 in real terms are necessary. There are also many requests from the Japanese side.



### 5. Examples of Factory Initiatives in Thailand

Each company has already moved ahead with solar panels and LED but feels that further reductions are needed.



## What to do next?

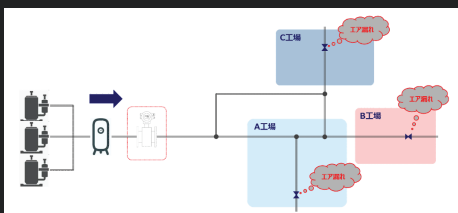
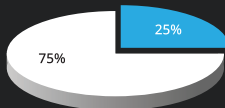
Solar panels, LED replacements are underway, but how to save more energy and reduce CO2 in search.

## Why embark on a compressor?

### 1. Compressor's share of electricity use

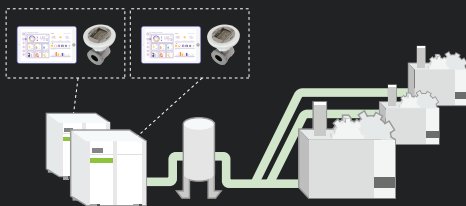
of electricity used by compressors throughout the plant The percentage is large, ranging from 18% to 25%.

\*Statistic



### 2. Piping air leak (piping from compressor)

In Japan, air leaks generally range from 20% to 30%. In Thailand, air leaks tend to be as high as 40% to 60%. Values are often found.



### 3. Understanding compressor conditions

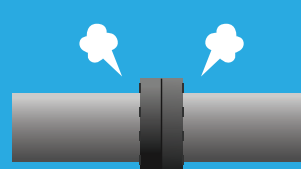
Understanding compressor "Condition, deterioration, appropriateness" conditions In many cases, it is not visible. Currently, only scheduled maintenance is common.

In Thailand, many factories conduct air leak inspections and sound repairs several times a year.

In many cases, compressor conditions, deterioration, capacity and pressure suitability are not visible.

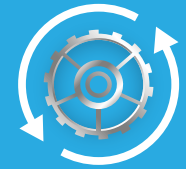
In many cases, the amount of electricity consumed by compressors is not small, and we believe that further reductions in electricity costs and CO2 emissions are possible.

## Potential challenges associated with compressors



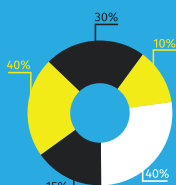
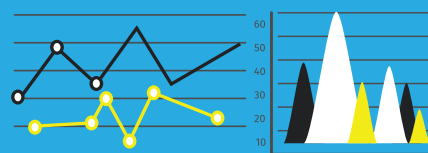
### Piping air leak

- Air leak ratio unknown
- No numerical data available



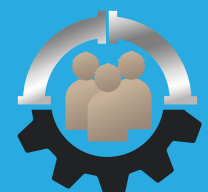
### Compressor Time of renewal

- Compressor status unknown
- Proper or not unknown



### proper original pressure

- Quantification, visualization has not been made



### Equipment maintenance

- Maintenance implementation record only
- not effective

### Compressor maintenance effect

- Status of efficacy unknown
- Guidelines for renewal date unknown



KDDI (Thailand) Co.,Ltd.  
 LinkedIn: KDDI (Thailand) Ltd.  
 Tel: 02-075-8888 / Email: bd@kddi.co.th

